What is claimed is:

1. A catalyst system useful in preparing an elastomeric composition, the catalyst system comprising:

at least one phenolic resin;

at least one ingredient selected from the group consisting of a non-transition metal halide and a nanoclay;

optionally, at least one acid; and

optionally, at least one hydrogen halide scavenger,

wherein when the ingredient is nanoclay, the phenolic resin is brominated.

2. The catalyst system of claim 1, wherein the at least one phenolic resin comprises a non-brominated phenolic resin when the ingredient is the non-transition metal halide.

3. The catalyst system of claim 2, wherein the at least one phenolic resin comprises methylol groups.

4. The catalyst system of claim 1, wherein the catalyst system comprises at least one aliphatic acid, at least one aromatic acid, or combinations thereof.

5. The catalyst system of claim 1, wherein the catalyst system comprises at least one acid, wherein the acid comprises oxalic acid, citric acid, stearic acid, or combinations thereof.

6. The catalyst system of claim 1, wherein the halide comprises magnesium chloride, calcium chloride, sodium chloride, potassium chloride, aluminum chloride, or combinations thereof.

7. A thermoplastic elastomer preparable using the catalyst system of claim 1.

8. An elastomeric composition comprising:

at least one elastomer;

optionally, at least one thermoplastic polymer, precursors for at least one thermoplastic polymer, at least one thermoset, or precursors for at least one thermoset polymer;

reacted in the presence of the catalyst system of claim 1,

wherein the elastomeric composition comprises a thermoplastic elastomer, a thermoset elastomer, or an elastomer.

9. A process for making an elastomeric composition, the process comprising:

providing a catalyst system of Claim 1;

providing at least one uncured elastomer;

mixing components of the catalyst system, simultaneously or sequentially, with the uncured elastomer; and

heating the uncured elastomer in the presence of the catalyst system to form the elastomeric composition.

10. The process of claim 9, wherein the amount of the phenolic resin used is about 2 to about 10 percent by weight based on total weight of the uncured elastomer;

wherein the amount of the halide used is about 2 to about 8 percent by weight based on total weight of the uncured elastomer; and

wherein the amount of the acid used is about 1 to about 5 percent by weight based on total weight of the uncured elastomer.

11. The process of claim 9, wherein the elastomeric composition is prepared using reactive extrusion.